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Some Factors Affecting the Movement of Ohio Wheat

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CONTENTS

SOME FACTORS AFFECTING THE MOVEMENT OF OHIO WHEAT

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SUMMARY

An analysis of data on the carlot movement of wheat, secured from records and by personal interviews with officials of over 150 privately- and farmer-owned elevators in Ohio and from figures furnished by track buyers, revealed the following information:

1. Ohio wheat enjoys a high reputation for making cracker, cake, biscuit, pastry, and general purpose flours.

2. There has been a marked downward trend in the number of acres of wheat harvested in Ohio from 1880 to date except for the pronounced increase from 1909 to 1918 brought about by the World War. The total production in bushels has not fallen off as rapidly as the acreage harvested, due to the upward trend in yield per acre since 1866.

3. Most elevators use the test weight per bushel as the basis for purchasing wheat, but there is no uniform method of arriving at discounts for grades lower than No. 2 or paying a premium for No. 1.

4. Variations in discounts on the same grade of wheat often are equal to one half of the margin the local elevator is able to get.

5. There were years when large profits could have been made by storing wheat during harvest without hedging, and selling before the next harvest. Other years showed large losses, and, on the average, storage would have netted 6.5 cents per bushel for wheat bought in August and sold in February.

6. During 1926, 90.9 per cent of the cars of wheat shipped were sold before shipping, and 75.9 per cent of the shipments had been made by the fifth day after being sold. Of the cars not sold until after shipped, 70.1 per cent were sold previous to the seventh day after shipment.

7. Ohio has six blanket freight rate territories to Eastern markets varying from 25½ to 34 cents per 100 pounds. Rates into southern markets are different for the various states, with some sections of Ohio having a distinct advantage over others.

8. The proportional, or reshipping, and the milling-in-transit privilege broaden the market outlets for Ohio wheat.

9. Toledo and Cincinnati are Ohio's principal terminal markets for wheat.

10. Seventy-five per cent of Ohio wheat shipments have an original Ohio billing, and 25 per cent move directly to southern and eastern mills or to the seaboard for export.

11. Ohio country elevators shipped about 45 per cent of their wheat during July and August, and the remainder moved rather uniformly throughout the rest of the year.

12. The factors influencing the choice of market are very numerous. The importance of the various factors in determining a choice of market varied for different elevators and for the same elevator, at different seasons of the year.

13. At times there was a wide variation between the cash bids of buyers located in different market areas. The cash bids of buyers located in the same market area were quite uniform.

INTRODUCTION

Closeness to markets complicates the problem of choosing the best market for Ohio wheat. The shifting needs of local and nearby mills, the proximity of the Toledo, Cincinnati, and Buffalo terminals, and the availability of southern mills make it imperative for the local shipper to pay attention to the shifts in demand as they are reflected in the daily "cash bids" from these various markets.

The type of agency that is utilized by the local shipper in finding a market for his wheat has in many instances been determined by the proximity of the two parties to the transaction rather than by price competition. The local shipper has responsible and fair dealing millers, commission men, brokers, and track buyers as possible outlets. Why one of these agencies should constantly receive all of the shipments, as is often the case, unless it is on the basis of price, is difficult to understand.

The shipper should make as many contacts with responsible firms as is possible and have available daily the reflection of wheat values as expressed by the cash bids he receives. The danger of shipping to markets whose only outlet is the exporter may lead to severe losses to the shipper. As a rule it is unsafe to ship to these market outlets unless the wheat has been sold before shipment.

The material in this bulletin should primarily be of interest to local shippers, farmers, and students not fully informed on some of the more common problems of wheat marketing.

SOURCES OF DATA AND SCOPE OF STUDY

The data used in this study represent the carlot movement of wheat, secured from records and by personal interviews with officials of over 150 privately- and farmer-owned elevators in Ohio and from figures furnished by track buyers, Figure 1. No attempt was made to secure data on the extent or the amount of wheat hauled direct to mills by farmers or the amount of wheat

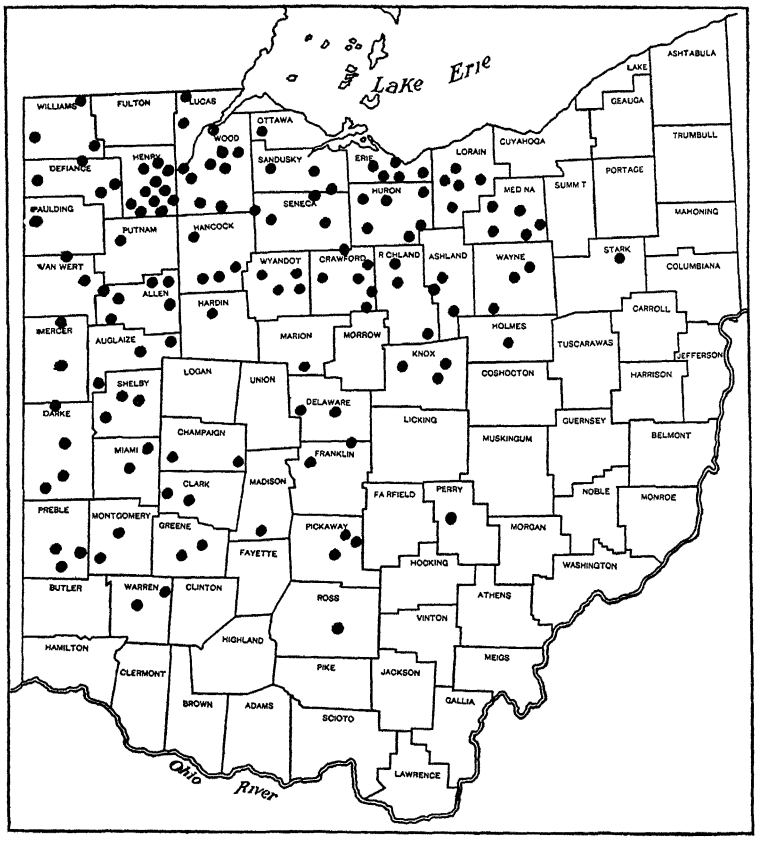

Fig. 1.—Location of elevators furnishing data on movements of Ohio wheat

trucked by local elevators to local or nearby mills. The data dealing with the inter-market movement of wheat were furnished by the Chicago office of the Federal Grain Supervision Administration. Facts concerning quality of wheat were secured from the Federal Grain Supervision offices at Toledo and Cincinnati and represent data from all Ohio inspection points.

TABLE 1.—Carload Shipments of Wheat by Years, 1924 to 1928

Year	Number of 1400-bu. cars
1924	2430
1925	1886
1926	4478
1927	2955
1928	930

Five years' shipments, beginning with the crop year July 1, 1924, and ending with the crop year June 30, 1929, were used as the basis of the study. In some years the shipments of a given crop extended into the following crop year. The number of 1400-bushel cars of wheat from which the study was made is shown in Table 1.

USES OF AND DEMAND FOR SOFT RED WINTER WHEAT

The manufacturing requirements of the mills now using Ohio wheat must be the basis upon which the production program of the Ohio farmer is founded. The present uses for Ohio wheat are mainly for (1) cake flour, (2) pastry flour, (3) bread flour, and (4) breakfast foods. Reports from 32 mills using Ohio wheat, located in eight states, showed that 20 manufactured bread flour, 8 cake flour, 15 pastry flour, and 5 an all purpose flour and a breakfast food. Some mills made all types of flour.

The production of a type of wheat that will withstand winter killing and give a high yield is not within the province of this study, but it is important that the demand of the miller receive first consideration in such a program. The small increase of hard winter wheat in certain sections of Ohio resulted in the following statement from a miller in North Carolina: "For the past seven or eight months we have bought several cars of hard winter wheat, but we do not like it. We very much like the soft winter wheat grown around and south of Columbus and always buy it when it can be obtained at competitive prices." According to an Ohio miller: "Ohio enjoys a very enviable reputation for her soft winter wheat flour. There is no state in the Union that enjoys a better reputation. We are opposed to those who are interested in varieties of wheat which are suitable for their particular use but which are not practical or desirable for the remaining soft wheat mills of the State."

TREND OF PRODUCTION OF WHEAT IN OHIO

The total production of wheat of all varieties for the United States for the period 1921 to 1925 averaged 804,151,000 bushels. Of this total 223,228,000 bushels were of the soft red winter variety, 14.9 per cent or 33,218,000 bushels of which were produced by Ohio farmers. Less than one per cent of Ohio's wheat production is hard wheat.

"The soft winter wheats are grown principally in the eastern half of the country, but are also grown to some extent in the Pacific Northwest. This class ranked second among the classes grown in 1919, but third in 1924, when it comprised 22.1 per cent of the total wheat acreage in the United States. The distribution in 1919 is shown in Figure 2 and the distribution in 1924 is shown in Figure 3."[1]

The acres of wheat planted and harvested in Ohio from 1900 to 1928 are shown in Figure 4. The acreage harvested from 1866 to 1928 is shown in Figure 5. The acres harvested from 1880 to 1928, omitting the years of the World War, gradually declined, and have varied in recent years from 872,000 in 1928, when 66 per cent of the acreage planted was abandoned, to 2,922,000 in 1919 when one tenth of one per cent was abandoned.

The yield per acre for wheat harvested from 1866 to 1928 shows a distinct upward trend (Fig. 6).

The production of wheat in Ohio from 1866 to 1928 is shown in Figure 7. The period from 1866 to 1880 was one of rapid increase in production; that from 1880 to 1928 was characterized by great irregularity in the amount produced. The importance of wheat production in the various counties of Ohio in 1849 and 1924 is shown in Figures 8 and 9.

MARKETING MACHINERY

The agencies through which Ohio wheat may be marketed are:

1. The track buyer.
2. Terminal Commission Merchant.
3. Broker.
4. Miller.

The track buyer buys for his own account and resells to the manufacturer or the exporter. At times he may resell to other track buyers or consign the grain to a terminal market commission merchant. Track buyers for the most part are located at interior points but may be located at terminals.

[1]U. S. D. A. Bulletin No. 1498.

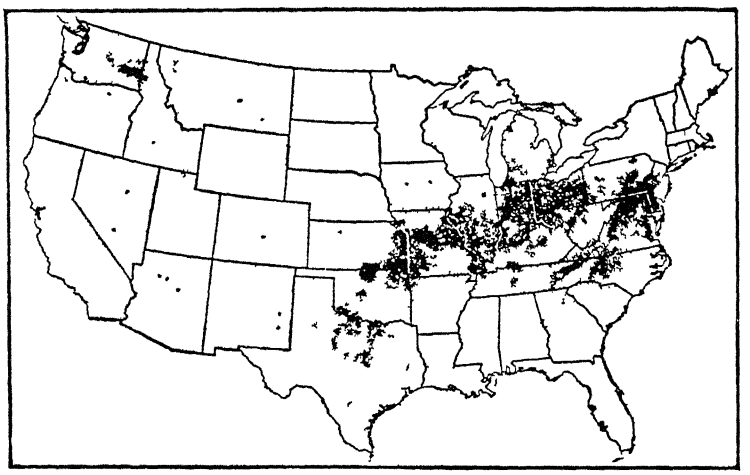

Fig. 2.—Distribution of soft red winter wheat in 1919. Each dot represents 2,000 acres. Estimated area, 21,943,133 acres

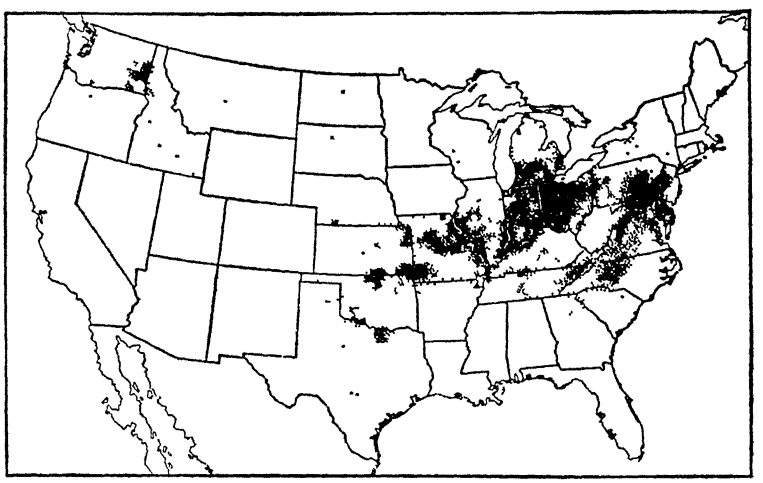

Fig. 3.—Distribution of soft red winter wheat in 1924. Each dot represents 2,000 acres. Estimated area, 11,216,850 acres

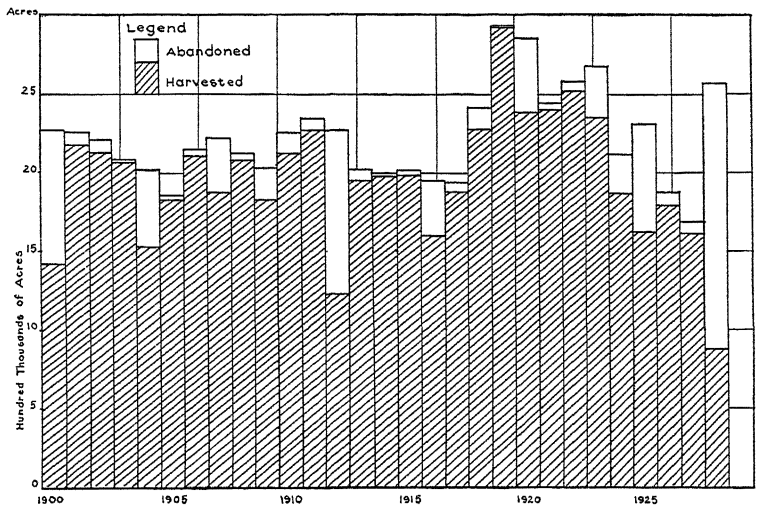

Fig. 4.—Acres of Ohio wheat planted and harvested 1900-1928

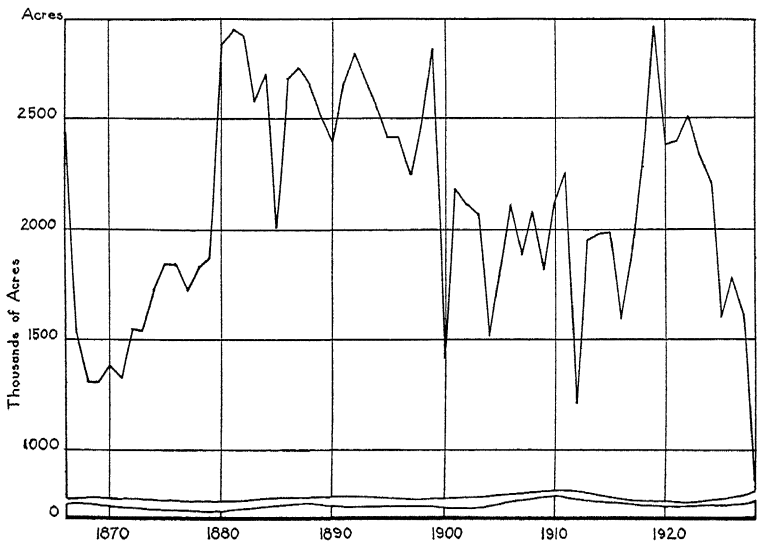

Fig. 5.—Ohio wheat acreage harvested 1866-1928

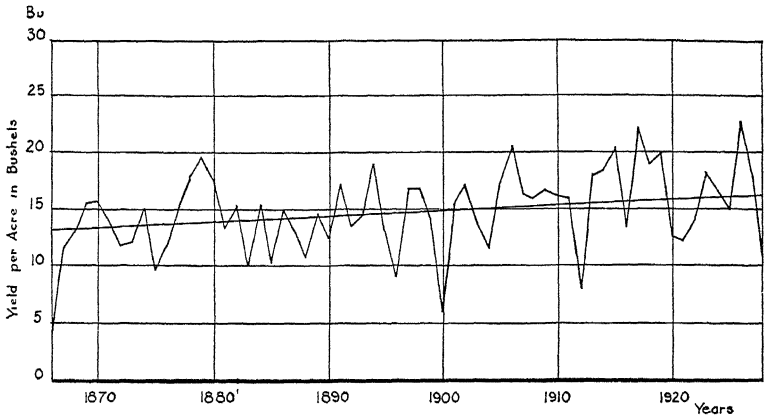

Fig. 6.—Ohio wheat yields per acre harvested 1866-1928 with straight line trend

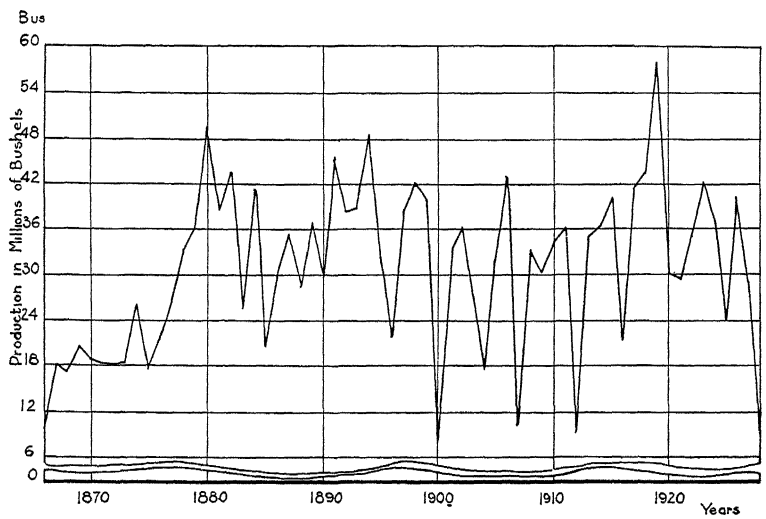

Fig. 7.—Total production of Ohio wheat for 1866-1928

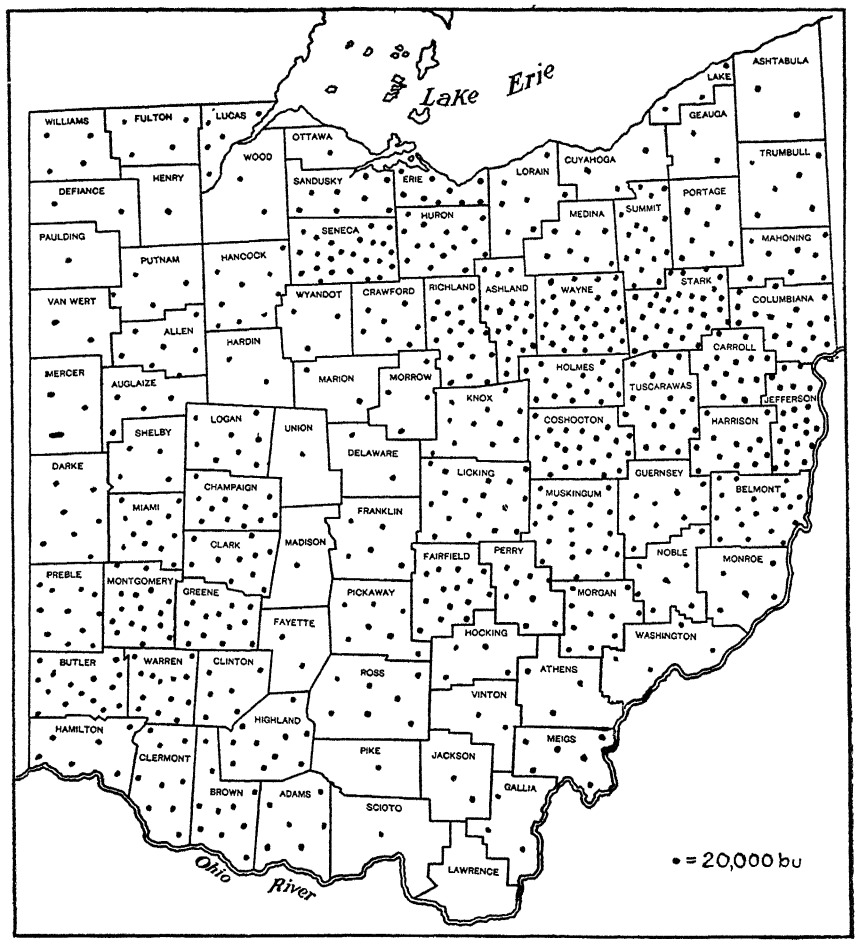

Fig. 8.—Production of wheat in Ohio, 1849 (Bushels)

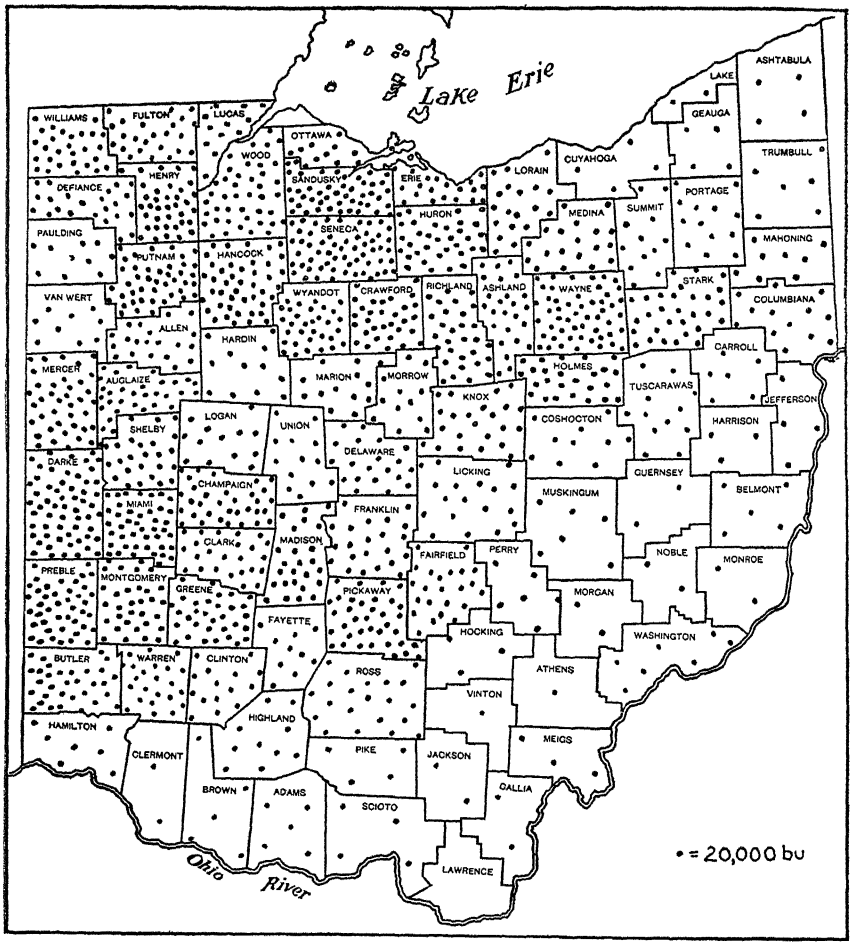

Fig. 9.—Production of wheat in Ohio, 1924 (Bushels)

The commission merchant is located at terminals where storage facilities are available. He confines his activities to handling grain on consignment, but he often buys grain on his own account. The commission merchant also furnishes or secures facilities for storage of grain for the local shipper and in addition acts as an intermediary between the country shipper and the Chicago futures market.

The grain broker buys for the account of others at a stipulated charge of from one-fourth to one-half cent per bushel. The broker

seldom takes any responsibility in the settlement of sales, this being accomplished by the buyer making direct returns to the shipper. The draft drawn by the shipper is usually drawn on the buyer whom the broker has secured. The payment of the broker is sometimes made by the buyer and sometimes by the seller.

Millers or manufacturers may be divided into two groups: (1) those who buy only for their manufacturing needs; (2) those who, in addition to buying for their own needs, buy for resale. In the latter capacity they assume the same function as the track buyer.

In actual practice it is difficult to determine where the activity of one agency begins and of the other ends, as some firms perform all the functions enumerated. It is of little importance to the shipper which type of agency handles his wheat so long as the particular firm with which he is dealing is one of good reputation and financial standing.

METHOD OF PURCHASE

The majority of Ohio elevators now use the test weight per bushel as the basis for purchasing wheat. The amount of discount deducted for off-grade wheat varies widely, no commonly accepted basis being in vogue even in elevators of the same community. Failure to adopt reasonable discounts is due to the general competitive situation within a territory. The presence of a local mill, an advantage in freight rates, or uneconomic competition has resulted in the adoption of buying policies that pay a premium for the poorer grades of wheat. Uniform methods of discounting off-grade wheat purchased from the farmer are a necessary step in the development of the quality and variety of wheat wanted by the miller.

GRADE REQUIREMENTS FOR SOFT RED WINTER WHEAT

The grade requirements for soft red winter wheat serve as the basis upon which the local shipper must sell his wheat (Table 2).

The customary sale by the local shipper is of No. 2 wheat, but it is not uncommon for sales of No. 1 wheat to be made by some companies. When a contract is made for No. 2 wheat and a grade lower than No. 2 is delivered, the methods of arriving at the discount to be paid the local shipper vary with different terminal markets and with the different mills to which the wheat is shipped.

The percentage of Ohio wheat coming under the official grade classification varied from year to year and during the different months of the same year.

TABLE 2.—U. S. Grade Requirements of Soft Red Winter Wheat

Grade No.	Minimum test weight per bushel	Moisture	Maximum limits of:					
			Damaged kernels		Foreign material other than dockage		Wheats of other classes	
			Total	Heat damage	Total	Matter other than cereal grains	Total	Durum
	Lb.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
1.....	60	13.5	2	0.1	1	0.5	5	2
2.....	58	14.0	4	.2	2	1.0	10	3
3.....	56	14.5	7	.5	3	2.0	10	10
4.....	54	15.5	10	1.0	5	3.0	10	10
5.....	51	15.5	15	3.0	7	5.0	10	10
Sample grade	Sample grade shall be wheat of the subclass Red Winter or Western Red, respectively, which does not come within the requirements of any of the grades from No. 1 to No. 5 inclusive, which has any commercially objectionable foreign odor except of smut, garlic, or wild onions, or which is very sour, or is heating, hot, or otherwise of distinctly low quality, or contains small, inseparable stones or cinders.							

*The wheat in grades Nos. 1 to 4, inclusive, shall be cool and sweet.
†The wheat in grade No. 5 shall be cool, but may be musty or slightly sour.

When comparing the various grades from year to year it was found that there was a greater variation in the per cent of grades 1, 2, and 3 than between grades 4, 5, and the sample grade (Table 3).

TABLE 3.—Variation in Grades of Ohio Soft Red Winter Wheat, 1924 to 1928*

Year	Grades in per cent					
	1	2	3	4	5	S. G.
1924-25.....	32.78	40.57	12.34	9.19	2.57	2.55
1925-26.....	25.96	46.07	16.80	4.78	3.84	2.55
1926-27.....	49.66	27.89+	8.68	5.99+	3.29+	4.49
1927-28.....	26.42	49.34	12.85	6.93	2.14	2.32
1928-29.....	4.29	42.06	28.27	12.42	8.64	4.32

*Data furnished by Toledo and Cincinnati Federal Grain Supervision offices; covers all Ohio points under their supervision.

Grades 1 and 2 show a varying percentage of all grades for the different months of the same year, and for different years (Table 4).

A comparison of the various months for different years shows that there seems to be a lack of uniformity in the per cent of one

TABLE 4.—Monthly Variation of Grades of Soft Red Winter Wheat—(Per Cent)*

Month	1924		1925		1926		1927		1928	
	Grade		Grade		Grade		Grade		Grade	
	1	2	1	2	1	2	1	2	1	2
July	38.07	44.74	29.50	48.92	87.98	8.77	33.21	39.17	17.56	55.31
August	37.16	38.75	18.31	40.04	46.58	26.71	25.08	50.92	3.10	40.81
September	25.69	39.47	28.24	41.78	14.13	31.28	16.04	55.90	7.30	45.67
October	24.92	39.06	28.40	41.29	24.02	37.06	22.22	52.25	2.50	35.00
November	27.48	38.47	25.71	44.74	24.79	41.59	19.58	56.93	2.22	43.33
December	29.49	41.48	16.00	44.67	32.06	29.82	17.36	58.26	1.06	35.11
January	30.40	40.60	32.02	45.67	43.81	33.99	34.16	46.38	1.30	44.15
February	38.63	42.86	33.27	47.96	44.31	37.09	17.68	64.64	1.48	34.81
March	22.86	43.43	32.30	49.61	47.69	36.92	21.53	63.46	3.35	31.28
April	14.69	51.42	31.22	49.49	48.82	33.58	48.70	34.42	3.45	50.86
May	28.39	42.20	21.89	55.07	52.27	31.52	27.67	50.31	2.19	47.44
June	32.57	46.31	25.95	54.53	51.54	33.93	21.74	47.83	2.29	46.86

*Data furnished by Toledo and Cincinnati offices of Federal Grain Supervision Administration.

grade of wheat that will be delivered in different years or the amount that will be shipped to the various markets after the first few months' shipments of the same year.

VARIATIONS IN GRADES SHOULD CONCERN THE LOCAL SHIPPER

Variations in grades should concern the local shipper in several respects: (1) Methods employed when purchasing wheat from the farmer, (2) Provision of facilities for properly mixing wheat receipts of many grades from various farmers, and (3) The practices of the mill or commission merchants in arriving at premiums and discounts for the various grades sold by the local shipper.

There is considerable variation in the methods of purchasing and in the margins taken on wheat.[2] The influence of the local mill, the difference in transportation costs, competition between privately-owned companies and farmers' companies, and the low costs of handling which some companies have, combined with the desire of the manager to get "his share" of the wheat of the territory have led to laxity on the part of some companies in paying for wheat on a quality basis. After purchasing wheat of various grades some companies might improve the grade of wheat shipped if more bin space were available, but it is of doubtful expediency to make additional space available through added investment.

[2]Economic Aspects of Ohio Farmers' Elevators. Ohio Agr. Exp. Sta., Bulletin 416, pp. 49-51; 60-66.

There is considerable variation in the price received by shippers for the same grade of wheat from different mills. The federal grade requirements allow a variation of two pounds per bushel between grades 1 and 2, 2 and 3, and 3 and 4; while three pounds are allowed between grades 4 and 5. Few cars of wheat exactly meet these grade requirements but usually are above or below the point at which a change in grade takes place. Moisture content and the other factors making up the minimum requirements of a given grade also show variations. The significance of this situation from the local shipper's point of view depends on the fairness of the commission merchant, the track buyer, or the miller in making discounts based on the milling qualities of the car in question. Table 5 shows the returns on ten cars of wheat, six going to Mill X and four to Mill Y.

TABLE 5.—Discounts Received from Two Mills by an Ohio Elevator on No. 3 Red Winter Wheat, 1929

Car Number	Test weight Pounds	Moisture content Per cent	Discount Cents per Bushel
Mill X			
A	57.7	12.6	1
B	57.5	13.0	1
C	57.7	12.9	1
D	57.5	12.1	½
E	57.3	12.7	1
F	57.7	12.7	1
Mill Y			
W	57.0	14.0	4
X	57.2	13.0	2½
Y	57.2	13.8	3½
Z	57.0	14.0	4

All ten cars of Grade 3 Red Winter were shipped from the 1929 crop to the mills during the harvest season. The test weight per bushel and the moisture content of these cars showed a smaller variation than the discounts received. In commenting on these variations in discounts the local shipper stated that "damaged grains had nothing to do with the discounts in either case". The importance of these discounts is apparent when the margin taken by elevators is considered. (In 1924, 138 out of 196 elevators took a margin of less than 8 cents per bushel, while 69 were able to take 6 cents or less)[3]. In a survey of 25 companies in 1929 the margins taken by these companies varied from 4 to 8 cents per bushel with the major portion taking from 6 to 8 cents per bushel.

[3]Economic Aspects of Ohio Farmers' Elevators. Ohio Agr. Exp. Sta. Bull. 416. p. 51, Table 26.

CORRECTION OF METHODS OF DISCOUNTING[4]

The correction of apparently unfair discounts lies mainly with the miller and the local shipper. Influential millers interested in securing an adequate supply of high quality soft winter wheat, through the organization of the "Tri-State Soft Wheat Improvement Association", have taken definite steps to correct the lack of uniformity in methods of discounting grades below No. 2 and to adopt a plan of paying a premium for No. 1. The essentials of such a program are shown in Table 6.

It is believed that if this program is generally adopted improvement in quality will result. This will be of direct advantage to the shipper. He can assist in bringing about uniform adoption by shipping to firms who do comply with the program.

STORING WHEAT

Approximately 14 per cent of the farmers' elevators in Ohio made a practice of storing wheat in 1924[5], either at the local plant, the terminal market, or at mills. The periodic profitableness of storing wheat acts as a speculative stimulus to the managers of local elevators.

The outcome of storing wheat without hedging for the period 1921-1929 is shown in Table 7. August was taken as the month for storage, because the storage facilities of the local elevator are sufficient only for the day to day requirements during the heavy harvest movement; and the cash price of No. 2 Red Winter Wheat averaged 3.5 cents per bushel higher in July than in August. The added expense of approximately 1½ cents per bushel of another month's storage at terminals makes the difference between July and August cash prices approximately 5 cents per bushel.

The greatest price differential, on the average, was between August and February; for these months it was 15.5 cents a bushel.

On the average it did not pay to hold wheat beyond February. When storage charges of 1½ cents per bushel per month were deducted, the net gain to the elevator was 6½ cents per bushel. The average cost during August of cash wheat at Toledo was $1.35 per bushel. Provided there was no additional terminal charge, and the same amount was stored each year, the return on the investment would have been 9.9 per cent. The outcome of selling wheat in other months is shown in Table 8.

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[4]For a more detailed discussion see Ohio Agr. Exp. Sta. Spec. Circ. 25.
[5]Economic Aspects of Farmers' Elevators. Ohio Agr. Exp. Sta. Bull. 416.

TABLE 6.—Premium and Discount for Various Grades of Wheat, Adopted by the Tri-State Soft Wheat Improvement Association

Moisture	I		II		III				IV				V					
	61	60	59	58	57½	57	56½	56	55½	55	54½	54	53½	53	52½	52	51½	51
12	1	1	0	0	0	— ½	— 1	— 1½	— 2½	— 3½	— 5	— 6½	— 8½	—10½	—12½	—14½	—16½	—18½
12.5	1	1	0	0	— ½	— 1	— 1½	— 2	— 3	— 4	— 5½	— 7	— 9	—11	—13	—15	—17	—19
13	1	1	0	0	— 1	— 1½	— 2	— 2½	— 3½	— 4½	— 6	— 7½	— 9½	—11½	—13½	—15½	—17½	—19½
13.5	1	1	0	0	— 1½	— 2	— 2½	— 3	— 4	— 5	— 6½	— 8	—10	—12	—14	—16	—18	—20
14	0	0	0	0	— 2	— 2½	— 3	— 3½	— 4½	— 5½	— 7	— 8½	—10½	—12½	—14½	—16½	—18½	—20½
14.5	— ½	— 1	— 1½	— 2	— 2½	— 3	— 3½	— 4	— 5	— 6	— 7½	— 9	—11	—13	—15	—17	—19	—21
15	— 1½	— 2	— 2½	— 3	— 3½	— 4	— 4½	— 5	— 6	— 7	— 8½	—10	—12	—14	—16	—18	—20	—22
15.5	— 3	— 3½	— 4	— 4½	— 5	— 5½	— 6	— 6½	— 7½	— 8½	—10	—11½	—13½	—15½	—17½	—19½	—21½	—23½
16	- 5	— 5½	— 6	— 6½	— 7	— 7½	— 8	— 8½	— 9½	—10½	—12	—13½	—15½	—17½	—19½	—21½	—23½	—25½
16.5	- 7½	— 8	— 8½	— 9	— 9½	—10	—10½	—11	—12	—13	—14½	—16	—18	—20	—22	—24	—26	—28
17	10½	—11	—11½	—12	—12½	—13	—13½	—14	—15	—16	—17½	—19	—21	—23	—25	—27	—29	—31

In addition, add:—

For damaged grains—1¢ for each 1% or fraction in excess of 4%.
For smut—2¢ to 10¢ depending on how badly smutty.
For foreign grain such as rye—1¢ discount for each per cent.
For mixed wheat, minimum of 2¢ per bushel discount under straight grades.

Examples:—

No. 1 wheat	60 lb.	13.5 moisture		1 ¢ premium
No. 3 wheat	59 lb.	14.5 moisture		1½¢ discount
No. 3 wheat	59 lb.	14.5 moisture	6 % D. G.	3½¢ discount
No. 3 wheat	56 lb.	14.5 moisture	5½ % D. G.	6 ¢ discount
No. 4 wheat	58 lb.	14. moisture	8 % D. G.	4 ¢ discount

Above premiums and discounts are the minimum basis for applying shipments on No. 2 wheat contracts. We reserve the right to make changes without notice.

TABLE 7.—Average Monthly Gain or Loss from Storing No. 2 Red Winter Wheat in August, Crop Years 1921-1929. (Storage not deducted)

	1921	1922	1923	1924	1925	1926	1927	1928	1929	Av.
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
September	+ 5	0	+ 3	+ 3	− 3	0	− 4	+ 8	+ 1	+ 1.4
October	− 3	+10	+10	+22	− 7	+ 8	− 2	+ 7	− 4	+ 4.6
November	− 4	+23	+ 8	+29	+ 4	+ 8	− 1	+ 2	− 7	+ 6.8
December	− 7	+28	+ 8	+45	+17	+ 7	+ 1	+ 1	− 3	+10.7
January	− 6	+15	+11	+73	+23	+ 6	+ 4	+ 1	− 7	+13.3
February	+11	+28	+13	+63	+16	+ 4	+12	+ 7	−14	+15.5
March	+16	+25	+ 7	+49	+ 4	0	+26	0	−19	+12.0
April	+15	+27	+ 7	+46	+ 5	0	+56	−12	−21	+13.6
May	+10	+13	+ 9	+58	− 6	+10	+59	−17	−23	+13.6
June	− 6	+11	+13	+52	−18	+12	+38	−20	−32	+ 5.5

The large speculative profits received by elevators during certain years acted as an incentive for storing. As much as 73 cents a bushel profit was made by those who stored in 1924 and sold during the month of January. In 1927, 59 cents per bushel were realized between August and May. For wheat purchased in August, losses from storage without hedging were possible in all years except 1924, unless the proper month for sale was selected.

TABLE 8.—Average Gain or Loss from Buying Wheat in August and Storing Without Hedging, 1921-1929

Month of sale	Average spot price at Toledo	Gain in price from August	Cost of storing wheat from August	Net gain in price of wheat from August	Rate of interest earned per annum
	Cents	*Cents*	*Cents*	*Cents*	*Per cent*
August	131.6	.....	.....	.....	.....
September	133.0	+ 1.4	1.5	−0.1	− 0.9
October	136.2	+ 4.6	3.0	+1.6	+ 7.3
November	138.4	+ 6.8	4.5	+2.3	+ 7.0
December	142.3	+10.7	6.0	+4.7	+10.7
January	144.9	+13.3	7.5	+5.8	+10.6
February	147.1	+15.5	9.0	+6.5	+ 9.9
March	143.6	+12.0	10.5	+1.5	+ 2.0
April	145.2	+13.6	12.0	+1.6	+ 1.8
May	145.2	+13.6	13.5	+0.1	+ 0.1
June	137.1	+ 5.5	15.0	−9.5	− 8.7

SELLING PRACTICES

The customary methods of selling wheat were "f. o. b.", "track" or "to arrive", and "delivered" or "consigned". Out of 2161 cars of wheat of the 1926 to 1927 crop, 90.9 per cent were sold "f. o. b.", "track", or "to arrive". The time between the date of sale and date of shipment varied (Table 9). During this period 75.9 per cent of the cars were shipped on or before the fifth day following the date of sale, and 53.9 per cent were shipped on or before the

second day after the date of sale. In July, however, only 49.5 per cent of shipments had been made at the end of the fifth day following sale. In some sections considerable contracting was done preceding harvest, which caused this variation.

TABLE 9.—Number of Days after Sale that Wheat was Shipped from 60 Ohio Elevators, 1926-1927 (Per Cent)*

Days	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Av.
0- 2	19.6	69.2	51.3	69.6	55.1	52.6	61.0	58.4	64.8	56.7	49.3	54.6	54.5	53.9
3- 5	29.7	18.2	26.6	17.4	23.1	23.1	22.0	26.1	23.0	18.3	17.8	15.3	27.3	22.0
6- 8	15.7	2.6	10.1	4.4	6.4	17.9	11.0	5.6	3.6	8.7	17.1	6.7	9.1	8.7
9-11	6.5	2.0	4.4	1.5	1.3	3.8	.9	4.2	1.5	9.6	8.9	4.0	.....	4.0
12-14	5.2	1.5	1.3	1.4	5.1	1.3	.8	1.5	1.4	.....	1.4	2.7	4.6	2.2
15-17	4.3	.5	2.5	2.9	1.3	1.3	.9	2.1	.7	.....	.7	2.7	.....	1.7
18-20	4.2	.5	3.2	1.4	1.3	.....	.....	.7	.7	1.9	1.3	.7	4.5	1.5
21-23	2.9	.7	.....	.....	.....	.....	.....	.....	.7	1.0	.7	2.0	.....	.9
24-26	4.3	1.5	.....	1.4	1.3	....	.....	.7	.....	1.9	.....	2.0	.....	1.4
27-29	3.3	.7	.....	.....	.....	.....	.....	.....	.7	.....	.....	.....	.....	.7
29-over	4.3	2.6	.6	.....	5.1	.....	3.4	.7	2.9	1.9	2.8	9.3	.....	3.0

*Distribution of 1965 cars.

Consigning and storing wheat by elevators at destination was not a common practice. Out of the 2161 cars, 9.1 per cent were sold following shipment. Of this number, part was represented by consignments to terminals for immediate sale or storage and part by shipments to mills for storage. Of the cars shipped before being

TABLE 10.—Number of Days Wheat was Shipped Before it was Sold, 1926-1927*

Day	Number of cars	Per cent
1- 3	96	56.1
4- 6	24	14.0
7- 9	7	4.1
10-12	6	3.5
13-15	2	1.2
16-18	.....	.....
19-21	5	2.9
22-24	2	1.2
25-27	1	.6
30 and over	28	16.4
Total	171	100.0

*Date of sale and date of shipment were available for sixty elevators.

sold 70.1 per cent were sold before the seventh day after shipment, and 56.1 per cent before the fourth day; while 16.4 per cent had not been sold at the end of thirty days (Table 10). Of the total consignments during the year, 65.3 per cent took place in July, August, and September (Table 11).

TABLE 11.—Number of Cars of Wheat Consigned by Months from Sixty Ohio Elevators, 1926-1927

Month	Number of cars	Per cent
July	15	7.6
August	78	39.8
September	33	17.9
October	9	4.6
November	10	5.1
December	4	2.0
January	8	4.1
February	8	4.1
March	8	4.1
April	6	3.1
May	7	3.5+
June	7	3.6—
July	1	.5
Total	196	100.0

FREIGHT RATE STRUCTURE AS IT APPLIES TO OHIO

Ohio shippers are interested in the freight rate structure as it applies to points in the East, South, and Southeast, the directions of the principal movement of surplus wheat. The present rate structure is the result of the experience of the railroads and regulatory bodies in building a feasible plan for rate-making purposes.

TABLE 12.—Domestic Freight Rates on Wheat to Various Markets from the Different Freight-Rate Territories in Ohio

Ohio freight rate territories to New York	Freight rates to various markets			
	New York	Philadelphia	Baltimore	Virginia Cities
34	34	32	31	31
31½	31½	29½	28½	28½
31	31	29	28	28
28½	28½	26½	25½	25½
28	28	26	25	25
25½	25½	23½	22½	22½

Rates to the East.—Rates from Ohio points to New York, Philadelphia, and Baltimore are certain percentages of the Chicago-New York rate. The State has six blanket territories to eastern markets varying from 25½ to 34 cents per 100 pounds (Table 12, Fig. 10). The rate to Philadelphia and Baltimore is 2 and 3 cents below the New York rate. All points in each Ohio territory have the same rate to the above destinations.

Rates South and Southeast.—The rates to designated Virginia city points are constructed on the same basis as the rates to eastern markets and are the same as the domestic rate to Baltimore. The

rate to another point in Virginia is composed of this blanket rate to these cities plus an arbitrary rate from these Virginia city points to destination. Wheat shipped from the 28½ cent territory to New York would take a rate of 25½ cents to the designated Virginia city points to which would be added an arbitrary rate to final destination. The rate for wheat moving into eastern Tennessee, the Carolinas, and Georgia is composed of the rates to the Virginia city basing points, plus an arbitrary rate from the Virginia city point to destination.

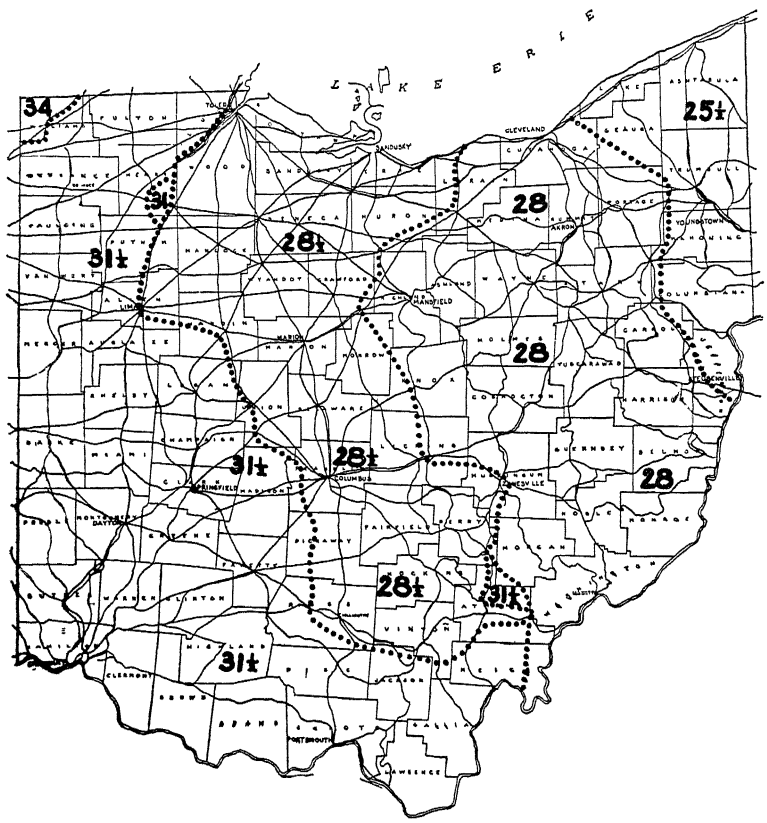

Fig. 10.—Ohio domestic freight-rate territories to New York on wheat. Cents per 100 lb.

Points on the Norfolk and Western, Toledo and Ohio Central, and the Hocking Valley from Columbus and south to the Ohio River, and stations on the Norfolk and Western from Cincinnati east to Portsmouth take the same rate into North and South Carolina points as Cincinnati.

There are thus two main gateways into southern territory, Cincinnati and Columbus. The total rate to points in the Carolinas from other Ohio points than those mentioned is a composite of the local rate to Cincinnati or Columbus or points south of Columbus on these roads, plus the rate to final destination.

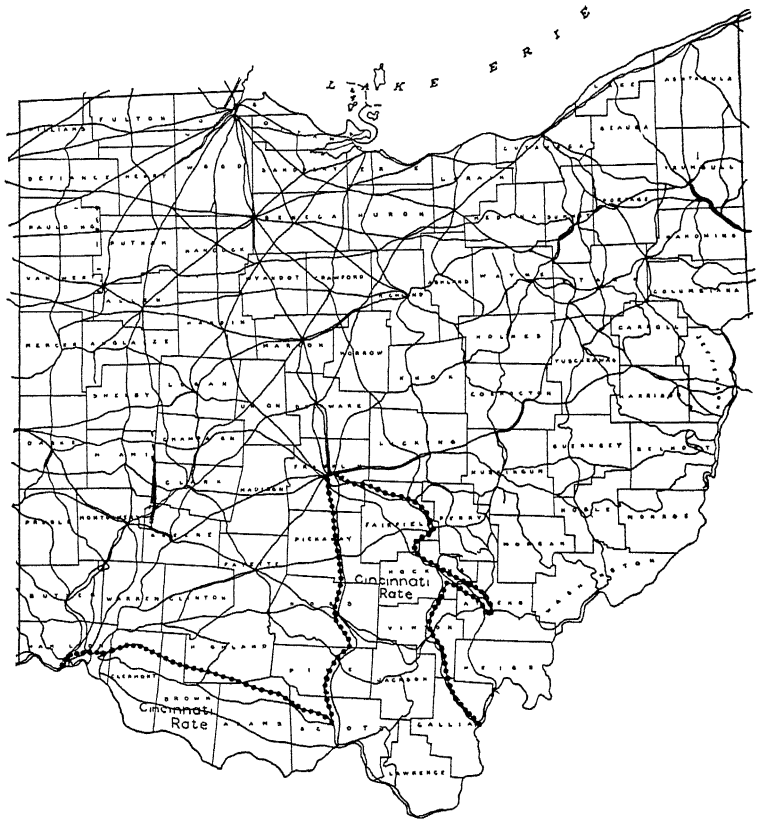

Fig. 11.—Ohio railroad points having Cincinnati rate to Carolinas

The rates into Kentucky, central and western Tennessee, and Alabama are composed of the local rates to Cincinnati or Louisville plus the rate from these points to destination.

So far as the movement of wheat into the Carolinas is concerned the points from Columbus south on the roads mentioned above have a preferential rate into this market equivalent to the local rates into Cincinnati and Columbus (Fig. 11).

PROPORTIONAL OR RESHIPPING PRIVILEGES AS THEY AFFECT THE MOVEMENT OF OHIO WHEAT

After wheat reaches the terminal storage centers it is in time moved to other markets, to the seaboard for export, or to mills. The rate on stored wheat out of the terminals to these various outlets is ordinarily a rate proportional to the through rate from point of origin to final destination. In reality these rates are a part of the through rate which is less than the local rate.

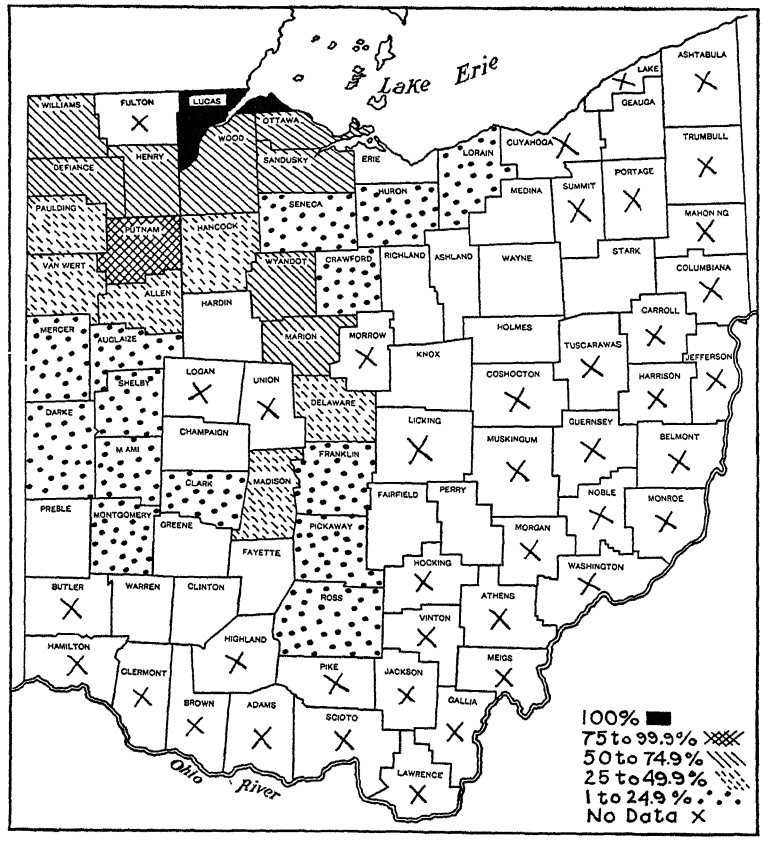

Fig. 12.—Per cent of wheat shipped to Toledo by 150 elevators, July 1, 1925 to June 30, 1928

Assume the through rate from Mattoon, Illinois, to Richmond, Virginia, to be 38½ cents per 100 pounds, the local rate to Cincinnati as 17½ cents per 100 pounds, and the local rate from Cincinnati to Richmond as 28½ cents per 100 pounds. The total of

the local rates would be 46 cents per 100 pounds from Mattoon to Cincinnati to Richmond. Wheat from Illinois, Indiana, and Ohio points is shipped into the Cincinnati market for storage. Some of this wheat is consumed locally. The rate on wheat out of storage from Cincinnati to Richmond would take a rate comprised of the local rate from Mattoon to Cincinnati (17½ cents) to which would

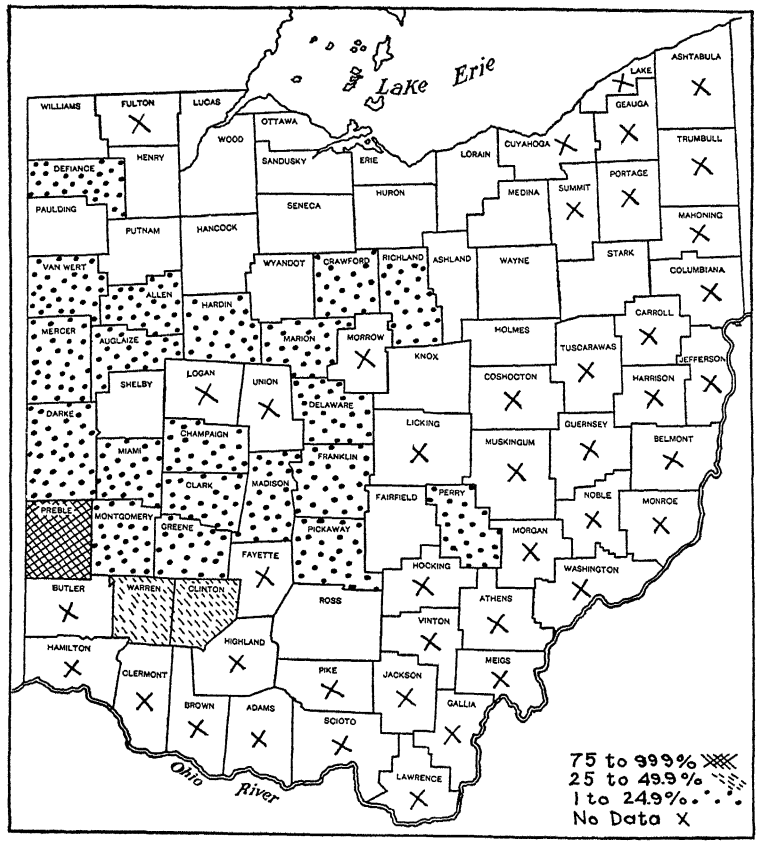

Fig. 13.—Per cent of wheat shipped to Cincinnati by 150 elevators, July 1, 1925 to June 30, 1928

be added a rate of 21 cents per 100 pounds and be equal to the through rate from Mattoon to Richmond. The proportional or reshipping privilege would permit the shipment of certain quantities of Ohio wheat to the Richmond market at 21 cents per 100 pounds rather than on the local rate of 28½ cents.

Cincinnati and Louisville have the reshipping privilege from western territory to the Carolinas and certain other southeastern

territory. To secure the advantage of proportional rates, the shipper must show that an equivalent amount was received within the last twelve months. The significance of this privilege may be that relatively large quantities of Ohio wheat sent to these markets

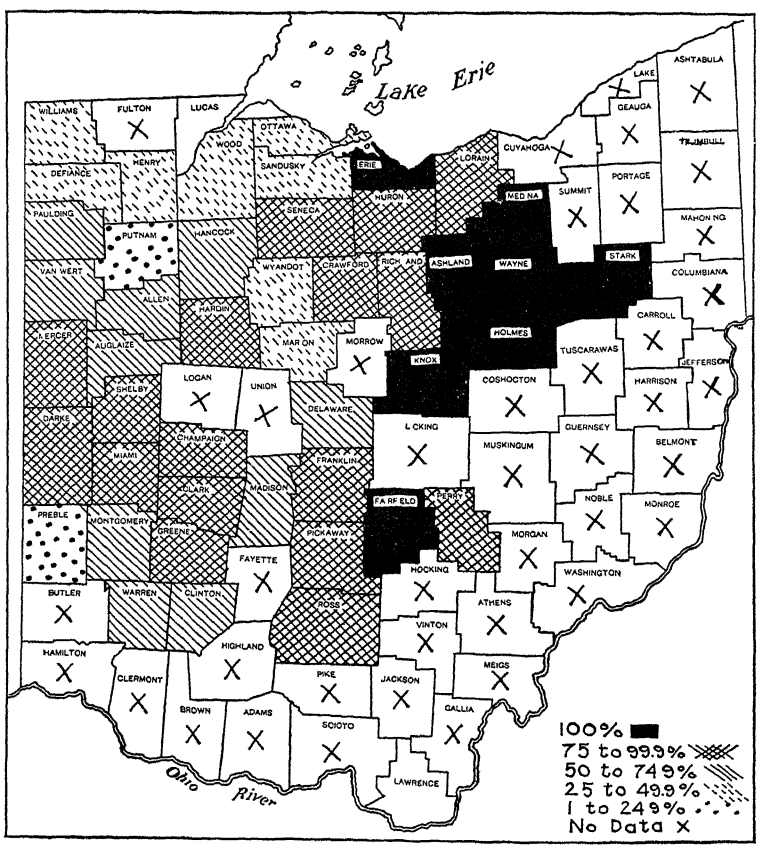

Fig. 14.—Per cent of wheat shipped by 150 elevators going to all markets except Toledo and Cincinnati, July 1, 1925 to June 30, 1928

may be utilized in filling the demand of southeastern millers and thus get the advantage of through rates on western wheat. In case of a shortage of western shipments, those from Ohio and other nearby states may be used in their stead.

MILLING IN TRANSIT

The milling in transit rate is an important privilege granted to mills and has a direct bearing on the direction of the movement of Ohio wheat. The price that a given mill will bid for wheat is

determined by the location of the available supplies of wheat. the proximity of the mill, and the competitive conditions under which the mills must dispose of their flour. This privilege, however, may greatly widen the market for flour and feed, not only in the

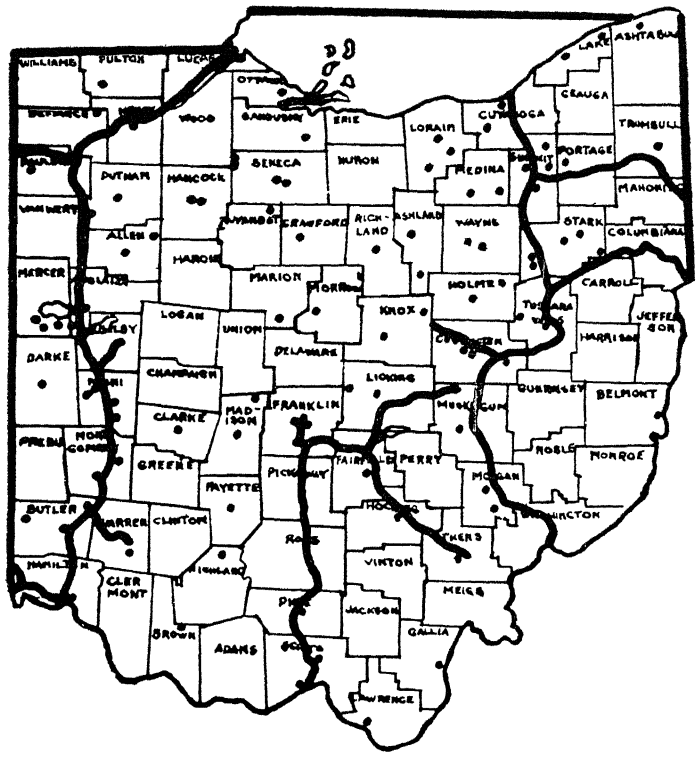

Fig. 15.—Location of Ohio mills with over 100 barrels daily capacity and the location of the Old Ohio Canal Systems

direction in which it would normally move but in the opposite direction. This opens up outlets for wheat in manufactured form to territories that could not be competitively reached if the privilege did not exist.

MARKET MOVEMENT OF OHIO WHEAT

Ohio terminal markets and mills.—Toledo and Cincinnati are important terminal markets for Ohio wheat. Wheat is shipped to Toledo principally from the western and northwestern part of the State (Fig. 12). The per cent of wheat going to Toledo varies for the different counties. Wheat is shipped to Cincinnati from the

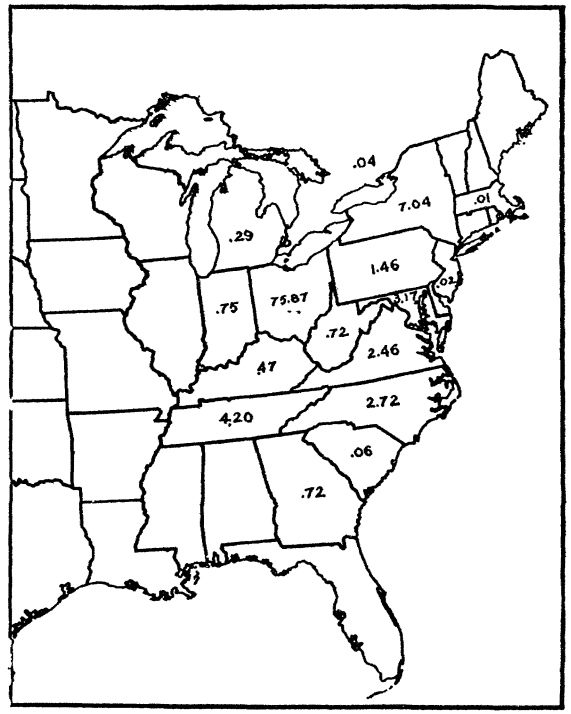

Fig. 16.—Destination of shipments of Ohio wheat from 150 elevators, 1924-28 (Per cent)

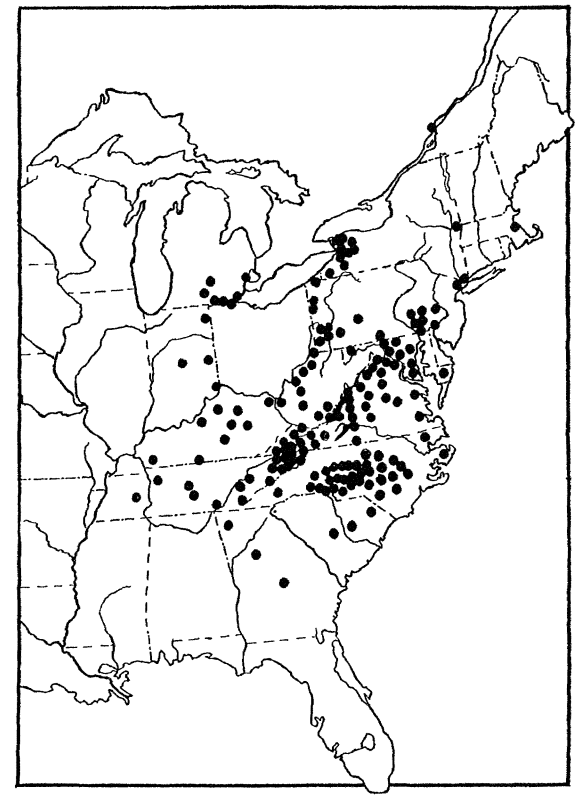

Fig. 17.—Market destination of wheat shipped out of Ohio by 150 elevators, 1924-28

western and central part of the State (Fig. 13). The percentage of shipments by counties to other markets of all elevators included in the study is shown in Figure 14. The location of Ohio flour mills had a pronounced influence on the destination of shipments and the agencies to which wheat was sold (Fig. 15).

TABLE 13.—Carload Shipments with Destination from Toledo of Inspected Wheat, 1924-1928

Destination	1924-25	1925-26	1926-27	1927-28	1928-29
Baltimore	1	24	217	21	3
Boston			2		
Buffalo	44	30	60	32	2
Cincinnati	26	33	11	23	7
Cleveland	1	1	11	19	15
Detroit	4		2	9	29
Fostoria	42	2	28	83	75
Huntington				8	1
Louisville		2			
New York			401	28	3
Norfolk			33		
Philadelphia	18		274		
Troy, Ohio				1	
Total	136	92	1039	224	135

Distribution of shipments.—Seventy-five per cent of the wheat shipped by 150 Ohio elevators went to points in Ohio; while the remainder went to eastern and southern states (Fig. 16). New York, Tennessee, Maryland, Virginia, and North Carolina received the largest proportion of these out-of-state shipments. The ship-

TABLE 14.—Carload Shipments with Destinations from Cincinnati of Inspected Wheat, 1924-1928

Destination	1924-25	1925-26	1926-27	1927-28	1928-29
Atlanta				1	
Baltimore		15	169	15	
Boston			12		
Buffalo	2	5	56	1	7
Chattanooga	1		3		
Charleston					3
Cleveland		2	4		
Columbia, South Carolina	4				
Huntington	11	18	2	10	3
Jacksonville				8	22
Lawrenceburg, Indiana	3	10		122	
Loudonville, Ohio		4			
Louisville	72	137	12	114	1
Mansfield, Ohio				1	
Nashville	45	58	14	11	
Newport News			121		
New York		5	321	15	
Norfolk			308	270	
Philadelphia		32	88		
St. Louis	3			3	
Toledo		27	1	32	70
Total	141	313	1111	603	106

ments to New York and Maryland were principally for export; while the remainder went to a large number of mills located in various states (Fig. 17).

Of the 75 per cent of the wheat that was shipped to Ohio markets all but a small portion was milled in Ohio. Under 5 per cent was billed to track buyers and rebilled to other markets, or distributed to other markets by the terminal commission merchant.

Tables 13 and 14 show the outbound destination of shipments of inspected cars of wheat from the Toledo and Cincinnati markets[6]. While these shipments include other than Ohio wheat, they represent fairly the distribution of Ohio wheat from these terminals.

The movement out of the Toledo and Cincinnati markets during years when the export market takes approximately 5½ per cent of the Soft Red Winter Wheat is, for the most part, to other interior markets for redistribution to mills. In a year like 1926, when approximately 13 per cent of this type of wheat was exported, the bulk of the movement from these markets is to the seaboard rather than to interior points.[7]

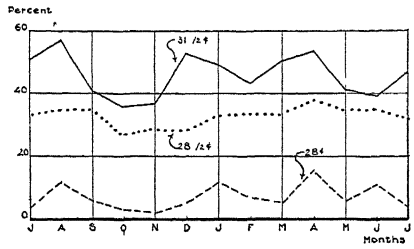

Fig. 18.—Shipments of Ohio wheat handled by commission merchants from the 28, 28½, and 31½ cent freight rate territories, 1924-28 (Per cent)

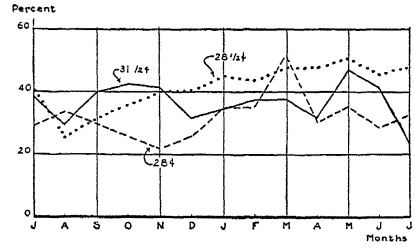

Fig. 19.—Shipments of Ohio wheat handled by track buyers from the 28, 28½, and 31½ cent freight rate territories, 1924-28 (Per cent)

The amount of wheat going through commission merchants and track buyers and to mills, varied for the different freight rate territories (Figs. 18, 19, and 20). There was little variation in the per cent going to track buyers from the different freight rate territories; while the per cent going to mills and commission merchants varied considerably (Figs. 18 and 20).

[6]U. S. D. A. Yearbook, 1928. Table XVIII-XIX, pp. 684-686.

[7]Data furnished by Federal Grain Supervision Department, United States Department of Agriculture.

Seasonal movement.—Ohio elevators shipped about 45 per cent of their wheat during July and August for the period 1924 to 1928 (Table 15, Fig. 21). The remainder moved rather uniformly during the rest of the year, with slight decreases from September to December followed by slight increases during January and February. Three and one-half per cent of the crop was shipped in April, the month of smallest shipments. There was considerable variation in the per cent of the crop shipped during harvest for the various years. These variations were due primarily to the lateness in the maturity of the crop or weather conditions.

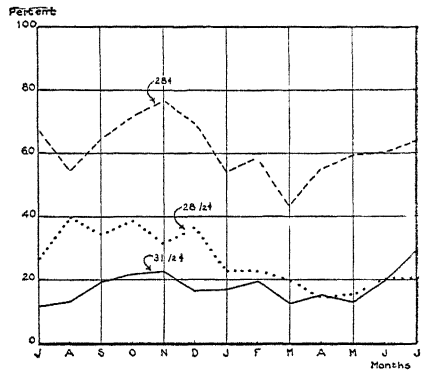

Fig. 20.—Shipments of Ohio wheat handled by mills from the 28, 28½, and 31½ cent freight rate territories, 1924-28 (Per cent)

The proportion of each month's shipments going to southern mills showed a high degree of uniformity except for August and September (Table 16). Of the total wheat shipped to southern mills, 1924-1928, 35 per cent was shipped during July and August. The remaining 65 per cent was rather evenly distributed during the remainder of the year (Table 17).

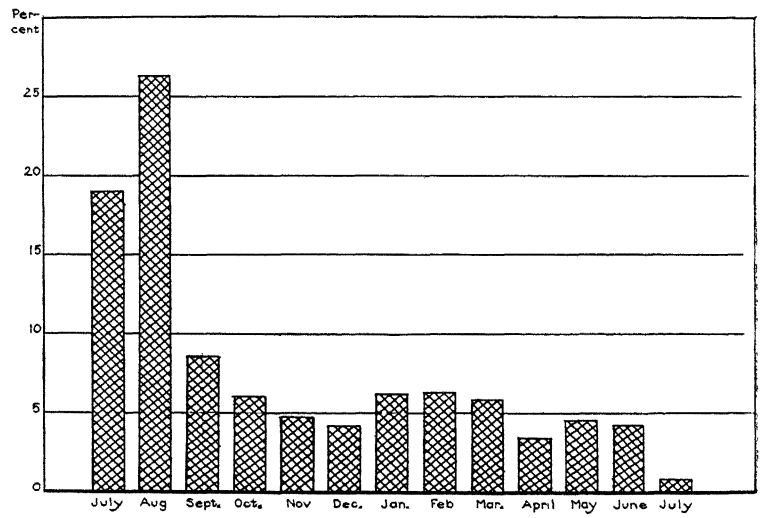

Fig. 21.—Seasonal movement of wheat from Ohio elevators by months—Average 1924-1928

TABLE 15.—Monthly Shipments of Ohio Wheat, from 150 Elevators, 1924-28. (Per Cent)

Month	1924-25	1925-26	1926-27	1927-28	1928-29	Av.
July	11.5	21.2	18.0	29.2	7.9	19.1
August	30.1	14.2	26.3	27.9	36.0	26.3
September	10.2	7.8	9.3	6.3	9.4	8.5
October	8.1	7.2	4.4	6.1	6.9	6.1
November	7.0	5.0	3.3	4.6	4.8	4.7
December	5.9	4.3	3.6	3.8	5.8	4.3
January	8.3	6.9	5.1	5.5	6.0	6.2
February	6.9	8.9	6.1	5.2	3.6	6.3
March	1.8	4.8	8.0	5.5	7.0	5.7
April	2.3	6.4	4.0	1.6	3.7	3.4
May	3.9	5.8	5.9	2.3	3.6	4.5
June	3.3	6.9	5.2	1.7	3.8	4.2
July	.7	.6	.8	.3	1.5	.7

TABLE 16.—Per Cent of Total Shipments of Ohio Wheat that Went to Southern Mills, By Months, 5-Year Average, 1924-1928

Month	Per cent	Month	Per cent
July	11.8	January	14.1
August	6.6	February	16.9
September	9.8	March	14.5
October	12.6	April	13.1
November	15.5	May	14.3
December	10.8	June	15.4
		July	8.6

TABLE 17.—Monthly Distribution of Ohio Wheat going to Southern Mills, 5-Year Average, 1924-28. (Per Cent)

Month	Per cent	Month	Per cent
July	19.9	January	7.7
August	15.2	February	9.4
September	7.4	March	7.3
October	6.8	April	4.0
November	6.4	May	5.6
December	4.1	June	5.7
		July	.5

The average per cent of shipments handled by or sold to the various agencies buying or handling wheat varied from month to month. There was also a variation in the per cent that each of these agencies handled in the various freight rate territories. Commission merchants bought on an f. o. b. basis or handled on commission about 45 per cent of each month's shipments in the 31½-cent territory, 30 per cent in the 28½-cent territory, and about 10 per cent in the 28-cent territory. The per cent of each month's shipments handled by commission merchants varied throughout the year in the different freight rate territories.

Track buyers purchased approximately the same per cent of shipments in the various freight rate territories (Fig. 11). The importance of the track buyer as a merchandiser of wheat increased after the heavy movement during harvest.

Direct sales to mills by shippers were approximately 60 per cent of total shipments in the 28-cent territory, 30 per cent in the 28½-cent territory, and about 15 per cent in the 31½-cent territory (Fig. 12). After December, when there is a scarcity of supplies of wheat at local elevators, mills bought less wheat directly.

From the western part of the State eastward, an increasing percentage of shipments was sold directly to mills, and a decreasing percentage was handled by commission merchants; while track buyers purchased approximately the same percentage of shipments in the various freight rate territories.

Factors influencing choice of market.—The factors which determine the direction of the movement of wheat from Ohio elevators and the type of agency which handles it are so numerous that it is often difficult to determine which ones are most significant.

Factors that influence managers to sell to or ship through a given agency are as follows:

1. Price.—The price bid by the different agencies for the same grade of wheat showed considerable variation on the same day. This reflects the demand for "cash wheat" from different consuming areas. (See page 36 on variations in prices between markets). Some managers are not influenced by these price variations in selling their wheat. The lack of information by the manager of prices from all the available market outlets is responsible to some extent for the wide variations that sometimes occur.

2. **Nearness to market outlets.**—Proximity to the agency which buys or handles the wheat of the elevator has a decided influence on its disposition. The ability of the manager to get in touch with the buyer or handler in a short time by telephone or letter, to adjust difficulties that may occur, and to secure quotations quickly, combined with the building up of friendly business relationships, leads to the establishment of more or less permanent business relationships.

3. **Custom of sale employed by the manager.**—The manager who has adopted solely the consignment plan of selling has been little influenced by the bids of track buyers or mills. The manager who sells practically all of his wheat on an f. o. b. or "to arrive" basis will take the best available bid at the time he is ready to sell.

4. **Grade determinations, premiums, and discounts.**—The discounts received for grades of wheat below contract and the premium paid for No. 1 in many cases are the most important of all factors in determining to whom wheat will be shipped or sold.

On page 16 it was pointed out that the discounts actually taken by certain mills were equivalent to about one half of the margin the elevator was able to take. Many interior mills are much more liberal in their discounts than are mills having an inspection service available. They are freer in allowing wheat to pass for contract grade that may vary but slightly below the grade requirements of moisture content or test weight per bushel. The fact that mills were willing to give and take slight variations in the minimum grade requirements had a direct bearing on the destination of a considerable portion of Ohio's wheat shipments.

5. **Financial responsibility and satisfactory trade relations.**—The small volume of shipments of the average elevator precluded its being able to get a satisfactory financial and business rating of the large number of mills available as possible market outlets.

When a manager had been dealing with a buyer or handler and had received satisfactory treatment, he continued these relations as long as the price was somewhere near the other bids available.

6. **Time of settlement for grain sold or consigned.**—With a few companies the time of settlement for grain sold determined to whom a sale would be made. This was especially true with companies that were under-capitalized and needed all of the funds they could secure. Some track buyers would pay to the elevator approximately the entire sale price of a car when called on the

phone by the manager who stated the quantity and quality of the wheat shipped. The added amount of two or three hundred dollars that the elevator could secure above what was ordinarily drawn by draft determined not only which company secured the wheat, but also the method of sale employed.

7. **Aggressive manner in which railway claims are filed and adjusted.**—Some track buyers and commission merchants gave satisfactory results in the handling of claims for losses in transit and thereby had an advantage in securing the business of the local elevator company when other factors that influence the movement of wheat were the same.

8. **Contract relation between mills and the local elevators.**—In territories where the local mill needed the bulk of the wheat produced a definite contractural relation had developed between the mill and the local elevator whereby the elevator bought the wheat in its territory for a guaranteed handling charge, usually four or five cents per bushel. The price paid was determined by the mill and the practice tended to "lock up" the local supply for the mill's use.

9. **Railway connections and freight rates to various market outlets.**—The freight rate structure is of considerable importance in determining the destination of wheat shipped from the local elevator. Under the discussion of freight rate structures, page 21, it was noted that certain sections of Ohio moved wheat to certain market outlets having preferential rates.

10. **Storage facilities.**—Approximately 14 per cent of the elevators in the State made a practice of storing wheat to be sold following harvest. A few mills at terminals and in the interior permitted elevators to store wheat. This allowed inspection at the time of receipt at the mill and reserved for the elevator the right to determine the time of sale. In certain sections mills will bid up to the point where the margin the elevator is able to get leaves little profit for handling. Storage with or without hedging was resorted to in order to secure an operating margin adequate to meet the costs of handling. The privilege of storing was therefore an important factor in determining not only the direction of movement but also the amount so moved.

11. **Contact with mills which buy wheat and sell flour and feed.**—In many cases shippers of wheat will sell to mills which are able to supply the elevators' needs for flour, bran, and middlings.

The desire of local feeders to secure feeds from "their own" wheat is an important factor in determining the amount of wheat sold to the numerous Ohio mills.

Variations in cash bids.—The cash bids sent out to elevators by commission merchants, track buyers, and mills for the same grade of wheat on the same day varied in a few cases as much as ten cents per bushel. In comparing the bids made for No. 2 Red Winter Wheat a common point, Columbus, was taken to show the variation that existed. Some of the bids selected for comparison were on a delivered basis to a given market while others were on an f. o. b. basis with a given price for the various freight rate territories. In case a delivered price was quoted the cost of the local rate to either market was deducted to make it comparable with the other market. In comparing the bids of two representative commission merchants—one located at Toledo and the other at Cincinnati—it was found that 5 per cent of the bids were the same, 65.5 per cent of the Toledo bids were above Cincinnati's, and 29.5 per cent of the Cincinnati bids were above Toledo's. A weighted average of the bids showed that the Toledo market was 1½ cents higher than the Cincinnati market. (Appendix C, Table 1).

There is not only a variation between cash bids for two markets, but also between different firms on the same market. In comparing three commission merchants on the same market their bids were found to be the same 57 per cent of the time, and during 91.5 per cent of the time the bids did not vary more than plus or minus one cent from the bids of the buyer taken as a base. Twenty-five per cent of the bids were above the firm taken as a base, and 18 per cent below. (Appendix C, Table 2).

Cash bids of three mills located in approximately the same trade area as a Toledo commission merchant showed some variation. Sixty-five per cent of the bids were identical, and 93.5 per cent were within a range of plus or minus one cent of the commission merchant's. Twenty-three per cent of the mill bids were above the commission merchant's bids and 12 per cent below. (Appendix C, Table 3). The variation in the bids of the separate mills as compared to those of the Toledo commission merchant showed still more difference than when compared with the bids of the mills as a group. Mill X had 26.5 per cent of its bids equal to those of the Toledo commission merchant, and 85.5 per cent of the time varied plus or minus one cent. Thirty and five-tenths per cent were above and 43 per cent were below the Toledo bid.

Mill Y bid the same 90 per cent of the time and varied plus or minus one cent for 99.5 per cent of the period; 8.5 per cent were above the commission firm's bid; 1.5 per cent were below. Mill Z bid the same as the Toledo commission merchant 49 per cent of the time and varied plus or minus one cent 88.5 per cent of the time. Six per cent were above and 44.5 per cent below the Toledo bid. (Appendix C, Table 4).

Another phase of the problem is the relation of the bids of the track buyer to the terminal commission merchant. It should be kept in mind that the commission merchant is also acting in the capacity of a track buyer as well as handling on a commission basis. Twenty-five and one-half per cent of the bids of the track buyer and commission merchant were the same and 86 per cent of the bids did not vary more than plus or minus one cent. Thirty-eight per cent of the track buyer's bids were above those of the Toledo commission merchant, and 36.5 per cent were below. (Appendix C, Table 5).

The elevator manager in order to secure the highest price available not only paid attention to the variations within an area influenced by a common competitive situation, but also to the differences that occurred between the different market areas. It was apparent that the greatest difference in bids was between the various market areas rather than between the various bidders in the same area.

APPENDIX A

The number of bushels of wheat, classified on the basis of the various domestic freight rate territories to New York, purchased monthly from 150 local elevators by track buyers, commission merchants, and mills, and shipped to points in and outside Ohio, 1924-1928.

TABLE 1 to Appendix A. 28-Cent Domestic Freight Rate to New York, 1924-1928

Year	Mills		Commission merchants		Track buyers	
	Ohio	Outside Ohio	Ohio	Outside Ohio	Ohio	Outside Ohio
	Bu.	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*
1924	220148	2200	7364	3309	71503	52817
1925	371059	2800	3300	6400	93372	67411
1926	558247	2200	23580	133441	180361	211954
1927	405991	.....	13325	32286	88081	123730
1928	260022	.....	.....	.....	68174	19658
28½ cent rate						
1924	474783	3861	429178	27469	389876	330093
1925	345751	1100	426546	1450	216633	262203
1926	858946	3901	1015754	339993	378358	785936
1927	687058	10400	537134	92770	244306	484411
1928	399624	1100	143140	7276	136742	33261

TABLE 2 to Appendix A. 31-Cent Domestic Freight Rate to New York, 1924-1928

Year	Mills		Commission merchants		Track buyers	
	Ohio	Outside Ohio	Ohio	Outside Ohio	Ohio	Outside Ohio
1924	6204	.....	18412	.....	16749	7392
1925	9315	.....	2274	.....	13896	.....
1926	5900	10585	19760	.....	36094	8009
1927	.....	5122	18246	7911	16222	7548
1928	1910	.....	.....	.....	.....	.....
31½ cent rate						
1924	183610	42311	471588	23389	249967	279436
1925	143788	17586	384580	4120	129495	56995
1926	163154	17335	841782	117003	248267	182550
1927	107856	21305	461052	33905	362350	277187
1928	73995	3560	89778	.....	36194	20618
34 cent rate						
1924	4484	13313	45105	.....	16676	10776
1925	26231	19700	19923	.....	13105	1386
1926	18588	.....	46397	.....	49131	12242
1927	37289	.....	3210	.....	37340	21564
1928	1100	1083	.....	.....	.....	5879

APPENDIX B

TABLE 1 to Appendix B. Receipts and Inspections of Cars of Soft Red Winter Wheat for Toledo, Cincinnati, and Other Ohio Inspection Points, by Months

Month	Grades						
	1	2	3	4	5	S. G.	Total
1924							
July	440	517	130	30	12	27	1156
August	1618	1687	565	396	20	68	4354
September	317	487	177	185	22	46	1234
October	238	373	135	145	27	37	955
November	180	252	76	92	33	22	655
December	128	180	52	36	30	8	434
January	173	231	57	41	39	28	569
February	265	294	56	37	21	13	686
March	40	76	26	13	14	6	175
April	26	91	15	16	12	17	177
May	111	165	50	28	30	7	391
June	128	182	41	9	27	6	393
Total	3664	4535	1380	1028	287	285	11179
1925							
July	462	766	230	78	16	14	1566
August	342	748	501	213	5	59	1868
September	146	216	79	15	34	27	517
October	119	173	60	6	42	19	419
November	127	221	87	7	33	19	494
December	48	134	65	16	28	9	300
January	122	174	53	5	23	4	381
February	188	271	59	8	29	10	565
March	125	192	36	9	18	7	387
April	152	241	53	10	21	10	487
May	95	239	59	6	26	9	434
June	129	271	48	5	29	15	497
Total	2055	3646	1330	378	304	202	7915
1926							
July	2217	221	37	5	23	17	2520
August	1882	1079	469	351	51	208	4040
September	149	330	196	168	66	146	1055
October	129	199	58	52	44	55	537
November	146	245	66	42	40	50	589
December	211	262	75	47	39	24	658
January	290	225	66	43	20	18	662
February	362	303	63	36	34	19	817
March	341	264	36	24	29	21	715
April	269	185	32	18	30	17	551
May	403	243	44	19	39	23	771
June	401	264	46	15	35	17	778
Total	6800	3820	1188	820	450	615	13693

TABLE 1 to Appendix B. Receipts and Inspections of Cars of Soft Red Winter Wheat for Toledo, Cincinnati, and Other Ohio Inspection Points, by Months—Continued

Month	Grades						
	1	2	3	4	5	S. G.	Total
1927							
July	708	835	299	229	14	47	2132
August	949	1927	566	285	19	38	3784
September	72	251	57	26	29	14	449
October	94	221	41	24	34	9	423
November	65	189	36	8	18	16	332
December	42	141	20	8	17	14	242
January	137	186	31	5	21	21	401
February	61	223	32	7	7	15	345
March	76	224	25	9	11	8	353
April	75	53	11	1	10	4	154
May	44	80	14	10	5	6	159
June	20	44	7	2	5	14	92
Total	2343	4374	1139	614	190	206	8866
1928							
July	33	104	28	15	4	4	188
August	29	382	318	147	30	30	936
September	27	169	98	26	31	19	370
October	7	98	84	37	39	15	280
November	2	39	14	14	13	8	90
December	1	33	30	15	10	5	94
January	1	34	17	8	14	3	77
February	2	47	43	16	19	8	135
March	6	56	53	32	21	11	179
April	4	59	22	13	11	7	116
May	3	65	35	11	17	6	137
June	4	82	43	11	31	4	175
Total	119	1168	785	345	240	120	2777

TABLE 2 to Appendix B. Per Cent of Various Grades of Each Month's Shipments Inspected at Toledo, Cincinnati, and Other Ohio Inspection Points

Month	Grades					
	1	2	3	4	5	S. G.
1924						
July	38.07	44.74	11.25	2.60	1.00	2.34
August	37.16	38.75+	12.98	9.09	.46	1.56
September	25.69	39.47	14.34	14.99	1.78	3.73
October	24.92	39.06	14.14	15.18	2.83	3.87
November	27.48	38.47	11.60	14.05	5.04	3.36
December	29.49	41.48	11.99	8.29	6.91	1.84
January	30.40	40.60	10.02	7.21	6.85	4.92
February	38.63	42.86	8.17	5.39	3.06	1.89
March	22.86	43.43	14.85	7.43	8.00	3.43
April	14.69	51.42	8.47	9.04	6.78	9.60
May	28.39	42.20	12.79	7.16	7.67	1.79
June	32.57	46.31	10.43	2.29	6.87	1.53
1925						
July	29.50	48.92	14.69	4.98	1.02	.89
August	18.31	40.04	26.82	11.40	.27	3.16
September	28.24	41.78	15.28	2.90	6.58	5.22
October	28.40	41.29	14.32	1.44	10.02	4.53
November	25.71	44.74	17.61	1.42	6.68	3.84
December	16.00	44.67	21.67	5.33	9.33	3.00
January	32.02	45.67	13.91	1.31	6.04	1.05
February	33.27	47.96	10.45	1.42	5.13	1.77
March	32.30	49.61	9.30	2.33	4.65	1.81
April	31.22	49.49	10.88	2.05	4.31	2.05
May	21.89	55.07	13.59	1.39	5.99	2.07
June	25.95	54.53	9.66	1.01	5.83	3.02
1926						
July	87.98	8.77	1.47	.19	.92	.67
August	46.58	26.71	11.61	8.69	1.26	5.15
September	14.13	31.28	18.57	15.92	6.26	13.84
October	24.02	37.06	10.80	9.69	8.19	10.24
November	24.79	41.59	11.21	7.13	6.79	8.49
December	32.06	39.82	11.40	7.14	5.93	3.65
January	43.81	33.99	9.97	6.49	3.02	2.72
February	44.31	37.09	7.71	4.40	4.16	2.33
March	47.69	36.92	5.03	3.36	4.06	2.94
April	48.82	33.58	5.81	3.27	5.44	3.08
May	52.27	31.52	5.71	2.46	5.06	2.98
June	51.54	33.93	5.91	1.93	4.50	2.19

TABLE 2 to Appendix B. Per Cent of Various Grades of Each Month's Shipments Inspected at Toledo, Cincinnati, and Other Ohio Inspection Points—Continued

Month	Grades					
	1	2	3	4	5	S. G.
1927						
July	33.21	39.17	14.02	10.74	.66	2.20
August	25.08	50.92	14.96	7.53	.51	1.00
September	16.04	55.90	12.69	5.79	6.46	3.12
October	22.22	52.25	9.69	5.67	8.04	2.13
November	19.58	56.93	10.84	2.41	5.42	4.82
December	17.36	58.26	8.26	3.31	7.02	5.79
January	34.16	46.38	7.73	1.25	5.24	5.24
February	17.68	64.64	9.27	2.03	2.03	4.35
March	21.53	63.46	7.08	2.55	3.11	2.27
April	48.70	34.42	7.14	.65	6.49	2.6
May	27.67	50.31	8.81	6.29	3.14	3.78
June	21.74	47.83	7.61	2.17	5.44	15.21
1928						
July	17.56	55.31	14.89	7.98	2.13	2.13
August	3.10	40.81	33.97	15.70	3.21	3.21
September	7.30	45.67	26.49	7.03	8.38	5.13
October	2.50	35.00	30.00	13.21	13.93	5.36
November	2.22	43.33	15.56	15.56	14.44	8.89
December	1.06	35.11	31.91	15.96	10.64	5.32
January	1.30	44.15	22.08	10.39	18.18	3.90
February	1.48	34.81	31.85	11.86	14.07	5.93
March	3.35	31.28	29.61	17.88	11.73	6.15
April	3.45	50.86	18.97	11.21	9.48	6.03
May	2.19	47.44	25.55	8.03	12.41	4.38
June	2.29	46.86	24.57	6.28	17.71	2.29

APPENDIX C. COMPARISON OF CASH BIDS FOR NO. 2 RED WINTER WHEAT FROM COMMISSION MERCHANTS, TRACK BUYERS, AND MILLS, 1924-28[1]

TABLE 1 to Appendix C. Comparison of a Toledo Commission Merchant's Bids with those of a Cincinnati Commission Merchant for No. 2 Red Winter Wheat. 1924-1928

Variation from Toledo bid (cents)	Times price varied		Varation from Toledo bid (cents)	Times price varied	
	Number	Per cent		Number	Per cent
6½	1	0.18	—2¾	9	1.66
6¼			—3	27	4.98
6			—3¼	9	1.66
5¾			—3½	17	3.14
5½			—3¾	8	1.48
5¼			—4	19	3.51
5			—4¼	7	1.29
4¾			—4½	13	2.40
4½			—4¾	6	1.11
4¼			—5	13	2.40
4	8	1.48	—5¼	5	0.92
3¾	1	0.18	—5½	8	1.48
3½	5	0.92	—5¾		
3¼			—6	4	0.74
3			—6¼	2	0.37
2¾			—6½	6	1.11
2½	4	0.74	—6¾	2	0.37
2¼	6	1.11	—7	4	0.74
2	13	2.40	—7¼		
1¾	4	0.74	—7½	1	0.18
1½	20	3.69	—7¾	1	0.18
1¼	7	1.29	—8	1	0.18
1	34	6.27	—8¼		
¾	11	2.03	—8½	2	0.37
½	28	5.17	—8¾	1	0.18
¼	17	3.14	—9	1	0.18
0	28	5.17	—9¼	1	0.18
— ¼	9	1.66	—9½		
— ½	23	4.24	—9¾		
— ¾	16	2.95	—10	2	0.37
—1	27	4.98	—10¼	3	0.55
—1¼	12	2.21	—10½		
—1½	26	4.80	—10¾	1	0.18
—1¾	15	2.77	—11		
—2	32	5.90			
—2¼	7	1.29			
—2½	15	2.77	Total	542	99.99

[1]The bids used were taken from private records of one of the types of buyers mentioned above and cover a period extending from January 1, 1924, to January 1, 1929. There were times during this period when the different buyers did not submit bids. The comparisons made were only for days when records were available for the different buyers.

TABLE 2 to Appendix C. Comparison of the Bids for No. 2 Red Winter Wheat of Three Cincinnati Commission Merchants, 1924-1928

Variation from X's bids (cents)	Times one varied	
	Number	Per cent
5	1	0.28
4¾		
4½		
4		
3¾		
3½		
3¼		
3		
2¾		
2½	1	0.28
2¼		
2	9	2.49
1¾		
1½	7	1.94
1¼		
1	21	5.82
¾	3	0.83
½	38	10.52
¼	10	2.77
0	206	57.06
— ¼	8	2.21
— ½	31	8.59
— ¾	2	0.56
—1	12	3.32
—1¼	1	0.28
—1½	6	1.66
—1¾	2	0.56
—2		
—2¼		
—2½		
—2¾	1	0.28
—3		
—3¼		
—3½	1	0.28
—3¾		
—4		
—4¼		
—4½		
—4¾		
—5		
—5¼		
—5½	1	
—5¾		
—6		
Total	361	99.73

TABLE 3 to Appendix C. Composite Comparison of Toledo Commission Merchant B'S Bids for No. 2 Red Winter Wheat with Bids for Three Ohio Mills. 1924-1928

Variation from Commission Merchant (cents)	Times price varied	
	Number	Per cent
5	1	0.10
4¾		
4½		
4¼		
4		
3¾		
3½		
3¼		
3		
2¾		
2½	1	0.10
2¼	2	0.20
2		
1¾	2	0.20
1½	2	0.20
1¼	4	0.41
1	22	2.25
¾	1	0.10
½	52	5.32
¼	32	3.28
0	635	64.99
— ¼	25	2.56
— ½	88	9.01
— ¾	13	1.33
—1	45	4.61
—1¼	4	0.41
—1½	21	2.15
—1¾	2	0.20
—2	9	0.92
—2¼		
—2½	2	0.20
—2¾		
—3	8	0.82
—3½		
—3¾		
—4	1	0.10
—4¼		
—4½		
—4¾		
—5	4	0.41
—5¼		
—5½		
—5¾		
—6	1	0.10
Total	977	99.07

TABLE 4 to Appendix C. Comparison of a Toledo Commission Merchant's Bids for No. 2 Red Winter Wheat with Bids of Three Ohio Mills

Variations from Commission Merchant (cents)	Mill X		Mill Y		Mill Z	
	Number of times	Per cent of times	Number of times	Per cent of times	Number of times	Per cent of times
5			1	0.21		
4¾						
4½						
4						
3¾						
3½						
3¼						
3						
2¾						
2½	1	0.52				
2¼	2	1.04				
2						
1¾	1	0.52			1	0.33
1½	1	0.52			1	0.33
1¼	4	2.07				
1	15	7.77	3	0.61	4	1.34
¾	1	0.52				
½	19	9.84	28	5.77	5	1.67
¼	15	7.77	10	2.06	7	2.35
0	51	26.42	437	90.10	147	49.32
— ¼	9	4.66	2	0.41	14	4.69
— ½	29	15.02	3	0.61	56	18.79
— ¾	7	3.62	1	0.21	5	1.67
—1	19	9.84			26	8.72
—1¼	2	1.04			2	0.66
—1½	5	2.59			16	5.37
—1¾	1	0.52			1	0.33
—2	3	1.56			6	2.01
—2¼						
—2½					2	0.67
—2¾						
—3	7	3.62			1	0.33
—3¼						
—3½						
—3¾						
—4					1	0.33
—4¼						
—4½						
—4¾						
—5	1	0.52	1	0.21	2	0.67
—5¼						
—5½						
—5¾						
—6					1	0.33
Total	193		486		298	

TABLE 5 to Appendix C. Comparison of a Toledo Commission Merchant's Bids with those of a Track Buyer for No. 2 Red Winter Wheat. 1924-1928

Variations from Commission Merchant (cents)	Times prices varied	
	Number	Per cent
5½	1	0.3
5¼		
5		
4¾		
4½		
4¼		
4		
3¾		
3½		
3¼		
3	1	0.3
2¾		
2½	1	0.3
2¼	3	1.0
2	2	0.6
1¾	3	1.0
1½	1	0.3
1¼		
1	17	5.4
¾	5	1.6
½	36	11.5
¼	49	15.7
0	80	25.6
— ¼	30	9.6
— ½	27	8.7
— ¾	14	4.5
—1	10	3.2
—1¼	6	1.9
—1½	5	1.6
—1¾	1	0.3
—2	8	2.6
—2¼	1	0.3
—2½	3	1.0
—2¾		
—3	3	1.0
—3¼		
—3½	2	0.6
—3¾		
—4	3	1.0
Total	312	99.9

APPENDIX D

TABLE 1 to Appendix D. Average Monthly Toledo Spot Price for No. 2 Red Winter Wheat by Months, Crop Years 1921-1929

	1921	1922	1923	1924	1925	1926	1927	1928	1929	Av.
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
July	1.28	1.15	1.11	1.27	1.61	1.45	1.39	1.55	1.35	1.351
August	1.27	1.10	1.02	1.30	1.69	1.33	1.38	1.41	1.34	1.316
September	1.32	1.10	1.05	1.33	1.66	1.33	1.34	1.49	1.35	1.330
October	1.24	1.21	1.12	1.52	1.62	1.41	1.36	1.48	1.30	1.362
November	1.23	1.33	1.10	1.59	1.73	1.41	1.37	1.43	1.27	1.384
December	1.20	1.38	1.10	1.75	1.86	1.40	1.39	1.42	1.31	1.423
January	1.21	1.25	1.13	2.03	1.92	1.39	1.42	1.42	1.27	1.449
February	1.38	1.38	1.15	1.93	1.85	1.37	1.50	1.48	1.20	1.471
March	1.43	1.35	1.09	1.79	1.73	1.33	1.64	1.41	1.15	1.436
April	1.42	1.37	1.09	1.76	1.74	1.33	1.94	1.29	1.13	1.452
May	1.37	1.33	1.11	1.88	1.63	1.43	1.97	1.24	1.11	1.452
June	1.21	1.21	1.15	1.82	1.51	1.45	1.76	1.21	1.02	1.371

TABLE 2 to Appendix D. Number of Days after Sale that Wheat was Shipped. (Cars) 1926-27

Days	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
0- 2	60	15	81	48	43	41	72	83	90	59	72	82	12	1058
3- 5	91	83	42	12	18	18	26	37	32	19	26	23	6	433
6- 8	48	12	16	3	5	14	13	8	5	9	25	10	2	170
9-11	20	9	7	1	1	3	1	6	2	10	13	6	.....	79
12-14	16	7	2	1	4	1	1	2	2	.....	2	4	1	43
15-17	13	2	4	2	1	1	1	3	1	.....	1	4	.....	33
18-20	13	2	5	1	1	.....	.....	1	1	2	2	1	1	30
21-23	9	3	.....	.....	.....	.....	.....	.....	1	1	1	3	.....	18
24-26	13	7	.....	1	1	.....	.....	1	.....	2	.....	3	.....	28
27-29	10	3	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	14
30-over	13	12	1	.....	4	.....	4	1	4	2	4	14	.....	59
Total	306	455	158	69	78	78	118	142	139	104	146	150	22	1965

TABLE 3 to Appendix D. Monthly Shipments (bushels) of Ohio Wheat from 150 Ohio Elevators, 1924-28

Month	1924-25	1925-26	1926-27	1927-28	1928-29
July	390,771	558,689	1,125,799	1,207,675	102,506
August	1,024,143	375,483	1,647,677	1,153,303	468,136
September	346,636	206,501	582,613	259,003	122,481
October	275,875	189,820	277,189	254,285	90,098
November	238,941	132,139	208,737	192,133	62,322
December	201,834	113,472	226,441	155,064	75,895
January	283,455	182,956	318,685	227,748	78,304
February	235,624	234,081	380,329	215,968	47,137
March	59,413	127,922	503,169	229,008	90,613
April	78,573	169,031	251,306	64,870	48,448
May	132,557	151,798	367,517	95,448	46,848
June	110,861	182,487	327,585	69,843	49,275
July	23,330	16,040	52,421	13,251	20,052
Total	3,402,013	2,640,419	6,269,468	4,137,599	1,302,115